The Political Economy of New Media Revisited: Platformisation, Mediatisation, and the Politics of Algorithms

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Abstract

This paper defines media platforms in terms of the theory of traditional two-sided media markets, then goes on to develop the theory to include content providers as a third side of the market (the "platformisation of media"), the widespread introduction of sellable meta-information about the platform network (the "mediatisation of platforms"), and the importance of social networking technologies to the media platform. Issues of concern raised by this include privacy, intellectual property, and equity. Genres of resistance to unwanted visibility and invisibility, such as spoofing, spamming, fingering and silencing are also noted.

1. Background

It is increasing difficult to distinguish any actual analytical category that separates "retailers" such as Amazon eBay and Apple from "search engines" like Google or Bing or "social media" such as Facebook and Twitter or even networked services such as Uber or AirBnB. Nearly all of these companies include features for searching content; for saving profiles; for recommending, rating, and commenting on content; for contributing content; for marking other profiles or content as favoured; and for locating and grouping audiences and targeting them with content. Obviously the scale, scope, and emphasis of these features is in each case is different, but it is not a stretch to argue that they all represent instances of a similar phenomenon. They are, by and large, distributors who do not create content but who acquire and redistribute it, and who sell access to and information about the people who read, write, play, buy and connect using their services, while at the same time attracting those people by giving them tools to find their way in a sea of content, products, and people.

Work has been done on the political economy of new media [1] and on some genres within it [2-6]. Nevertheless, chief among the changes to the wider Web in the last decade has been the rise of social technologies and the increasing prominence of the "platform" as the new model of media which crosses categories between different businesses like Facebook and Google and media forms as different as radio and video gaming. In tandem with studies on platform economics and the meaning of platforms has come a renewed interest in algorithms and software studies as a way to approach modern digital content infrastructures. This paper analyses the structure of online media platforms in order to answer the following questions:

- *What can an economic view of platforms contribute to our understanding of platform media?* And, conversely*, how does an analysis of platform media contribute to our general understanding of other platform businesses?*

It could be argued that instead of platform media the term algorithmic media [7-9] might be used. However, although an empirical focus on algorithms is warranted, it is not (or not entirely) the presence of digitized logic that gives these markets their character. Platforms existed prior to digitized algorithms – good examples are credit cards and newspapers. Yet, algorithms make the functions of the platform much more efficient and available. A secondary question that this paper will seek to answer, therefore, is which algorithms are central to platform media.

As platforms develop and algorithms increase in both power and complexity, what is at stake is meaningful public oversight over these developments and their implications for society. Concerns about privacy, content ownership, and cultural diversity are often handled on a case-by-case basis, but the analysis in this paper seems to show systemic features that need to be carefully examined by academics and regulators.

First I outline what I mean by a media platform. I then describe media platforms from both a technical and an economic perspective, using the concept of a multi-sided market in order to understand the relations between different interest groups. I focus on the centrality of social networking technologies as

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essential means of control of the platform and its dimensions, and discuss the centrality of surveillance and of algorithms of measurement, ranking, and sorting for platform businesses. I illustrate these mechanisms with examples from current media.

2. Platform Economics and Media Platforms

As literature on multi-sided and two-sided markets has developed within the field of economics, often using media businesses as examples, media scholars have also been attempting to grapple with what the "platformisation" of media might mean for issues of content diversity, privacy, freedom of expression, and the relation between free and paid labour. Mansell argues strongly that new empirical evidence is needed because "[t]he structural features of 'platformised' markets are continuously changing in ways that are not captured in the assumptions in economists' theoretical models" [10].

The "platform" is an increasingly common type of online organizational form. Online platforms include search engines like Google, retailers like Amazon and eBay, content providers like Wikipedia, and social networks like Facebook, Twitter, Instagram, as well as some parts of more traditional software and hardware manufacturers like Microsoft (Bing) and Apple (iTunes and App Store). Online platforms are central to what might be called the content or media infrastructure of the Web – that is to say, the infrastructure through which digital content and media, both privately and industrially created, are distributed throughout the Web. Companies based on the platform model, such as Google and Facebook, rather than the giant content-creating companies (such as TimeWarner or Disney), have emerged as the distinctive new media industrial form of the digital era.

The word *platform* is ambiguous and multimodal. Gillespie [11] highlights the discursive aspects and rhetorical functions of the platform, citing its computational, architectural, figurative and political meanings. Implicit in all these definitions is the platform as a "raised level surface," which is "designed to facilitate some activity that will subsequently take place," [11]. The definition of platform, according to Gillespie, implies a place in which all are equal, visible and assisted in fulfilling their aims. As Gillespie describes, platform-based companies use this definition strategically to deflect criticism and to elide differences between different constituencies.

One aspect not taken up by Gillespie is the increasing use of the word platform within the economics literature. As with the other meanings of platform, within economics the platform is a central area in which exchanges are coordinated and in which the presence of the platform gives additional benefits the parties in the exchange [12]. A market with such a platform is also called a *two-sided* or sometimes *multi-sided* market (or sometimes, multi-sided business or multi-sided platform) [13].

In these type of markets, the platform creates value by bringing disparate groups together (for example, readers and advertisers) and allowing them to interact in such a way that both parties are better off (advertising messages reach readers, and readers better understand the world and are entertained). Rochet and Tirole (who won the Nobel prize in 2014 for his work on understanding and regulating these markets) give several media examples to illustrate their definition of two-sided markets in their key 2003 paper: video games (with consumers and software developers as the two sides), streaming media (consumers and servers), browsers (users and web servers), portals ("eyeballs" (quotation marks in the original paper) and advertisers), newspapers (readers and advertisers) and TV networks (viewers and advertisers) [12].

According to Rochet and Tirole, the platform sets the price structure and price level, and a key strategic or competitive goal is to ensure that both sides of the market sign up to the platform. In order to ensure this, the platform may – and often does – structure prices so that one side of the market operates at a loss while the other side generates all the profit of the platform. To take an example from modern newspapers, the profit of a free newspaper (like *Metro* or *The Evening Standard* in the UK) is what it charges its advertisers, less what it costs to "pay" its readers in news and entertainment. In a free newspaper the readers are entirely subsidized by the advertisers, and one side subsidizing another side is a common structure for two-sided markets.

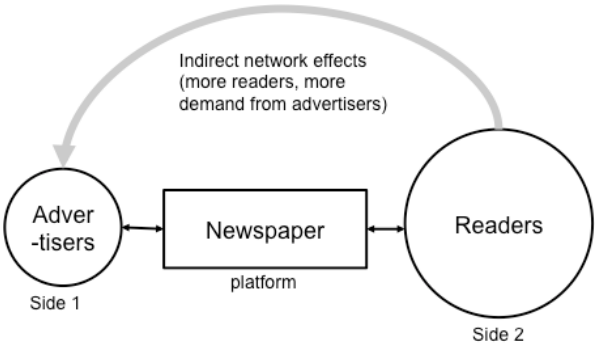

Figure 1. Two-sided (traditional) media market (newspaper example).

Why do advertisers subsidise readers? In fact, they only do so in publications whose readership is includes enough of the advertiser's customers to make it worth their while. In a multi-sided market, demand for the

platform (and relatedly, the price it can charge) is, in large part, determined by how many participants are present on each side of the market. The more readers of the right type, the more attractive the paper is to advertisers. In economic language, when the benefit of a network expands with its size, it is called a *network effect*. When the benefits of the network size reach non-participants in the network – so the size of the readership benefits another group, the advertisers, it is an *indirect network effect*. In traditional media markets, generally it is only the advertiser side that increases demand due to indirect network effects [13].

Platforms exercise power in this example through setting prices on both sides –in the example of *Metro,* a price of zero to readers – which serves to attract and retain enough customers on one side (the reader side) for network effects to kick in and attract the other side (the advertisers).

Multi-sided markets with platforms exist in many businesses. For example, the literature contains references to credit and debit cards [12-14], manufacturing [15], and services like real estate [12]. Yet, very many examples in the literature relate to classic media markets such as newspapers and television, newer media such as video games and streaming media, and internet media such as search and social media, and other types of computer software and operating systems. In other words, media markets have been seen as platforms or multi-sided businesses since economists began to develop theories about these markets.

2.1 The Platformisation of Media Businesses

If traditional media types such as newspapers, radio, and television are already included in the definition of a multi-sided or platform market, what then might it mean for media to be "platformised," as Mansell [10] suggests? There are (at least) three dynamics at play in this platformisation process.

The first dynamic is the continuing *separation of media content from media distribution methods* (in the 1990s this was referred to as *convergence*) so that content provision becomes a third side of the market. In our previous example from Rochet & Tirole's original descriptions, "newspapers" were the platform and "readers" and "advertisers" were the sides of the market. Today's media markets are perhaps better understood if we instead took the analogy that *paper* was the platform and the news organization or freelance writers contributed news content. It's easy to see this structure with Google, which has advertisers and searchers looking for content provided by web site developers, or with iTunes, where listeners find content provided by record labels and individual artists. The abstraction of content from delivery method is central to the platformisation of the media (see also Manovich, who discusses this separation as a key property of media software [16]). The addition of content providers as a third side of the market in turn implies that indirect network effects in terms of strengthening demand from consumers, and therefore advertisers, will apply to platforms that supply a great amount or variety of content (as suggested by the success of content aggregators such as NetFlix, iTunes and Google).

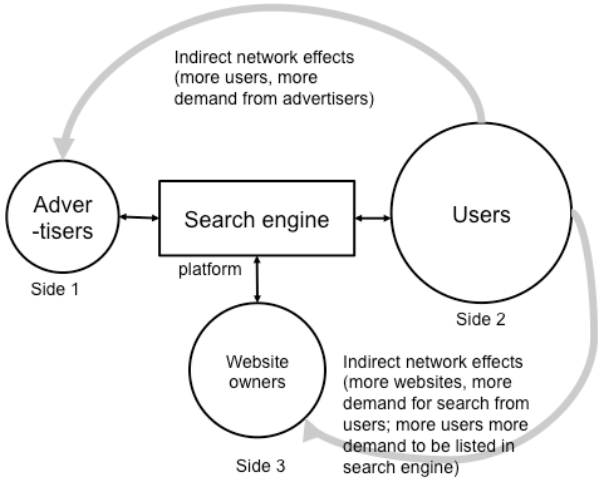

Figure 2. Three-sided new media market (search engine example).

The separation of content from distribution is not a new trend in media, (one can think, for example, of the ever-increasing trend for freelance journalists within the field of journalism), but the development of computerized content management systems has enabled this separation in such a way that it represents a qualitative and not just a quantitative shift in media business.

2.2 The Mediatisation of Platform Businesses

The second dynamic might perhaps be termed the *mediatisation of the platform*. This is the development of meta-information about the platform as a key part of the platform business, for re-sale (for example, to advertisers) as an add-on or additional product. In this way, non-media platform companies begin to resemble media. For existing media businesses, the collection of information about their users, content providers, and, to a lesser extent, advertisers, is extended in the "mediatized" model.

An example of a platform business which is in the process of mediatisation is Uber, a platform-based taxi business with passengers and drivers as the two sides of the market. It collects and analyses information

about its network of passengers and drivers and their behavior, and has begun to use this information in its business, sometimes for PR purposes and sometimes for revenue [17]. In the diagram below, the platform graphic is changed to a cylinder form, which conventionally denotes a database, to indicate the presence of this meta-information.

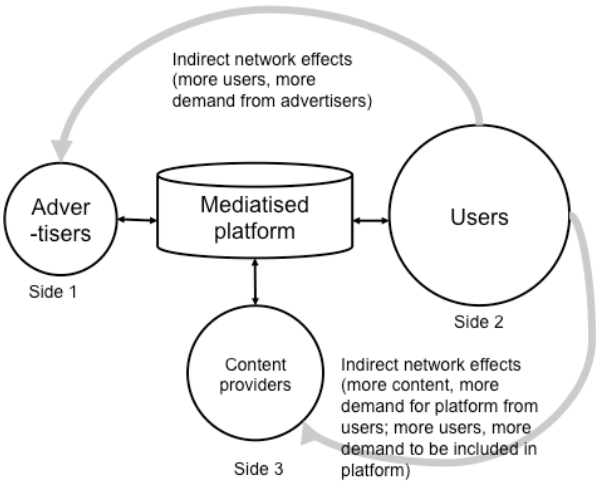

Figure 3. Multi-sided media market with mediatised platform.

Once again, the focus on amassing information about users is not a new trend within media (consider the importance of Nielsen audience metrics within television), or even within business in general, where "relationship management" theories are built on customer databases, but within modern platforms these trends are made much more prominent and intense using digital technologies.

2.2 Social Networking Technologies and Platform Media

Evident in practice, but not much mentioned by in the literature on platform economics is the frequent introduction of social networking technologies to one or more sides of the market. Social networking technologies contribute to the development of the size of the platform, the separation of content from distribution, and the amassing of information all at the same time.

By social networking technologies I mean technologies which allow users firstly to *create and manage an identity and community*, that is, to set up a profile and to find, view, link to, and traverse other profiles; and, secondly, to *create and manage content*: to post and edit content, link to content, share content with others, and rate or rank content. This definition partly follows Ellison & boyd [18; 19] and its development by Kane et al [20], but with more weight given to content-related features since content is a key side of any media market, and the relationship between content and profile is deep and complex.

Although they are commonly used on the "consumer" side of media markets, social technologies may be incorporated, in addition, into the content provider or developer sides of the market. It is also possible to incorporate these tools into the advertiser side as well, though this is much less common.

In social network-enabled platforms, a different network effect, called a *direct network effect,* is created: the number of users on the platform directly benefits the user, since the more people are connected, the more they can interact with their friends. This direct network effect stimulates demand on the consumer side in addition to the indirect network effects on advertising and content demand. Thus, social technologies can increase market share (consumers would like to be on the network where most of their friends are) or stabilize a side of the market that might otherwise be vulnerable to competitive pressures (consumers will tend not to leave that network if their friends do not also leave). There are some vulnerabilities, of course, for example the generational effect that leads young people to seek different media from their elders.

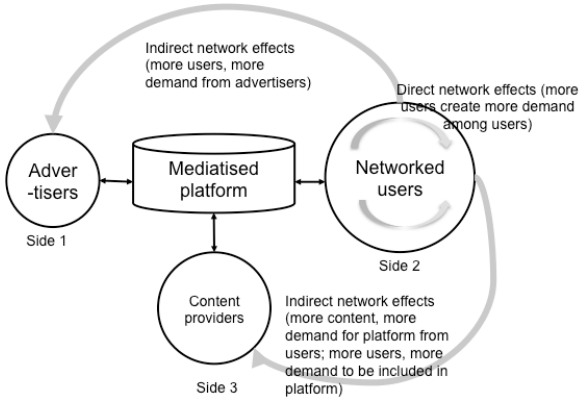

Figure 4. Mediatised platform with a social network enabled among users.

Social technologies serve other functions, as well, for the mediatised platform business in creating the meta-information about the platform, and in strengthening demand from both users and advertisers. On the profile side, they describe (and to some sense, create) the network topologically through "friend" links and structured profile information. On the content side, they incorporate at least part of the third side of the platformised media market (content provision) by generating content themselves. On Instagram, for example, users provide the photographic content which other users browse; on Etsy, business

owners provide discussions and tips for other business owners. In addition, these technologies provide information about quality of content on the platform (through rating and ranking functions such as likes on Facebook or ratings on TripAdvisor or recommendations on Amazon) and the structure of the content (eg through playlists on YouTube or links between patterns and yarns on the knitting network Ravelry). The use of social technologies in media platforms is compelling for many reasons, although their implementation and configuration varies.

3. Platforms and algorithms

It is evident that the mediatised and social-network-enabled platform that is the modern media business must have a considerable technical infrastructure. Not only must physical datacenters store and transmit the content and information produced by the different sides of the market, but complex computer algorithms must manage and process that data. The centrality of algorithms to modern media businesses (and other mediatised platform businesses, as in the earlier Uber example), has been noted in the literature in the past few years, prompting discussion of an "algorithmic turn" in media studies, and potentially of "algorithmic media" as the new paradigm [11; 21-24]. There have been discussions of algorithmic cultures [25] and algorithmic epistemologies.

Gillespie calls for an investigation of "public relevance algorithms". Napoli suggests, rightly, that algorithms are probably best viewed as sociotechnical assemblages with a distinctly institutional character. This paper aims to contribute to the discussion, not by suggesting *how* to investigate algorithms, but by outlining *which types of* algorithms deserve the focus of media scholars, based on the previous discussion of the economic features of platform businesses.

4. Types of media platform algorithms

The core economic function of the platform is to facilitate exchanges between the different sides of the market, as we have seen. In the media market, the central tripartite "exchange" has generally been the delivery of content to the user and at the same time user attention to the content provider and the advertiser [26].

The algorithms related to this exchange are one part of the *algorithmic ecosystem* of a media platform. In this context, algorithmic ecosystem simply refers to a complex and interdependent set of algorithms. This is not to say that these algorithms are unchanging or independent from human intervention. On the contrary, human intervention, institutions, and practices are key to the continuing function of these algorithms [8; 27]. However, the algorithms provide a useful focus for examining, evaluating and comparing media platform businesses.

The delivery of media content to the user can be handled by a browsing interface (for example, a channel or electronic program guide), a searching interface (the query box), or a simple display interface (featured programming). Most media platforms provide all three types of delivery. Users of the network generally experience these information reveals as guidance or navigational help.

Algorithms for finding and displaying content therefore include simple functions such as *listing*, but usually the list is *classified or sorted*, and, most often, *ranked*. We might think here of Google's search engine results, but another interesting example of this is Snapchat, which has a time-limited display mechanism. Increasingly content may be *visualized* (this is, presented in a non-traditional format, such as a map or chart or other information graphic), and it can also be *personalized;* that is, the part of the network that is revealed to you could be quite different than that revealed to your neighbor (for example, your feed on Facebook is different to anyone else's).

As discussed above, mediatised platforms also, importantly, store and process information about the network itself, and these are the algorithms that constitute the second part of the algorithmic ecosystem. Specifically they store and process information about users, about content, and about the relationships between users and content. (Rarely, if ever, do they reveal to outsiders information about advertisers or relations between advertisers and users or advertisers and content.) This requires algorithms that *trace* and *track* user behavior. Initially these operated on page visits and clicks, traces of which were built into the very first Web servers in the form of http:// requests and referral records. But increasingly high value information comes in the form of *links* of different types, both user-to-user (eg "follow" links on Twitter) and content-to-content (e.g., hyperlinks, the first-exploited source of network information). Some links come with information about the type of link. For example, on Flickr you may identify "friends" but also "family." User-to-content relationships are established not just by page visits and clicks on a mediatised platform, but also by user-evaluation mechanisms such as *likes, tags, recommendations, ratings* and *rankings*. Similarities in these user-to-content relationships are then often used to identify implicit user-to-user relationships or content-to-content relationships as the topology of the network is more and more described.

The meta-information collected by the mediatised platform is then made available for searching and display to the advertiser or other market participant.

These two classes of algorithms – search and display, and tracking and tracing – are linked by a third set which matches, groups, and sorts content and people dynamically.

5. Platform media algorithms and politics

While the use of social networking technologies and mediatised platforms makes economic sense in many cases, the implications of these platforms are troubling. At least three key areas of public concern have been identified called into question with this new economic structure. The first is *privacy*; the second is *intellectual property*; and the third is *equity* or fairness in representation. When viewed a certain way, each of these issues of concern is about control of information – how much should be shared, and with whom, and in what way? These issues are central to the politics of media platforms because access to information and content on the network and about the network is the heart of the platform media business.

Clearly algorithms do not exist in a social and political void, and in fact struggles for the management of the network away from its algorithmic base are common. Without access directly to the algorithms of revelation, network members turn to different tactics to protect or promote themselves and others, materially affecting, in some cases, the operation of the platform.

Not everyone wants themselves or their actions to be made visible. Criminals, for example, do not want to reveal their crimes; but neither do adulterers want to show their relationships, nor employees their off-hours hobbies. Companies and institutions don't want their internal discussions known. Dissenters may not wish to showcase unpopular political views. The right to privacy of both persons and corporate persons is enshrined in the UN laws. Unwanted visibility may be combatted by a variety of techniques (other than simply refusing to use the media platform): *cloaking,* or hiding your information; *spoofing,* or pretending to be someone you are not.

Conversely, some would like to be more visible than the algorithms of revelation show them. This category could include aspiring celebrities; ideologues who believe their views should be more widely spread; or companies with something to sell; or content providers in the margins who want to move into the mainstream. Unwanted invisibility may be combatted by *spamming*, or giving false information; or *boostering,* paying other network members for their links, recommendations, ratings, tags, comments and similar.

Making other network members or network content more visible may also be desirable to some. One may wish to indicate disagreement with the views or actions of network members and fingering people or content with tags (for example *disagreeing* their posts or posting a private exchange to a public space.) One may wish to have better access to content by downloading it for use outside of the network.

Strategies for excluding or blocking unwanted network members or content are also found. from certain discussions, etc.

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6. Conclusions

In this paper I have laid out the economic discussion about multi-sided platform markets, and considered their implications for media platforms as we know them today. I have argued that media is becoming more "platformised" as more sides are introduced to the market, notably in the form of the abstraction of content production from content distribution. And, I have argued that platforms of different types have become more "mediatised" as they increasingly store a layer of meta-information about users and content for resale primarily to advertisers. Finally, I have argued for the importance of social networking technologies to the economic performance of media platforms. Competitive logics within the media platform sphere focus heavily on ensuring a critical mass of users that will attract advertisers, which in turn means either securing attractive (and ideally exclusive content), either from traditional content providers or alternative from content generated within a social network. Secondly, the focus is on building up information about that network of users (and content providers, potentially) to sell on to others, primarily advertisers.

The central algorithms of the platform media ecosystem are firstly algorithms of search and display and secondly algorithms of tracking and tracing. A third, meta-class of algorithms of matching and sorting links these first two classes. While these algorithms may be opaque and complex as a group, each smaller element of the class is potentially more available for study by social scientists.

The platform business creates revenue by controlling access to content stored within the platform and information about the platform. Social issues of privacy, intellectual property, and equity are all directly and immediately implicated in the algorithmically-made decisions about who can and who cannot have access to the platform's information and media content. Users, advertisers, and content providers all have adopted strategies to increase and decrease their own and other's visibility and invisibility within platform frameworks, and these

issues will continue to be at the centre of platform media design, management, regulation and governance in the future.

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